

**REMARKS**

Claims 1-17 are pending in this application. By this Amendment, claim 1 is amended. This amendment is supported by Applicants' specification at least at, page 7, lines 5-15, page 7, line 29 - page 8 line 16. Claims 3, 5 and 17 are amended to correct informalities. No new matter is added. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

The Office Action objects to claim 3. Claim 3 is amended to obviate this objection. Withdrawal of the objection to claim 3 is respectfully requested.

The Office Action rejects claim 1 under 35 U.S.C. §112, first paragraph, for as failing to comply with the written description requirement. Claim 1 is amended to obviate this rejection. The Office Action asserts that one could not determine what special design is implemented. Applicants' specification at page 7, line 29 - page 8, line 6 discloses suitable component are, for example, dispersive mirrors or blocks of highly dispersive media such as, for example, SF57 glass. Further, at page 8, lines 8-16, discloses that the compressor designed with regard to the intra-cavity pulse stretcher can advantageously be formed with the use of a dispersive grating having a relatively small number of lines. Thus, Applicants' specification discloses both SF57 mirrors or blocks and gratings as specially-designed pulse stretchers.

Accordingly, reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. §112, first paragraph, are respectfully requested.

The Office Action rejects claim 17 under 35 U.S.C. §112, second paragraph, for as being indefinite. Claim 17 is amended to obviate this rejection.

Accordingly, reconsideration and withdrawal of the rejection of claim 17 under 35 U.S.C. §112, second paragraph, are respectfully requested.

The Office Action rejects claims 1-4, 6-9, 11, 12, 14, 16 and 17 under 35 U.S.C. §103(a) as being unpatentable over "Femtosecond pulse amplification at 250kHz with a Ti: sapphire regenerative amplifier and application to continuum generation," Optical Society of America 2412 Optics Letters 17(1992) July 15, No. 14 by Norris et al. (hereinafter "Norris") in view of "Generation of 0.1-TW optical pulses with single stage Ti: sapphire amplifier at a 1-kHz repetition rate," Appl. Phys. B 70[Suppl.] S161-S164 2000 by Hentschel et al. (hereinafter "Hentschel"). This rejection is respectfully traversed.

The Office Action concedes that Norris does not teach any feature that can reasonably be considered to correspond to a feature wherein the laser resonator has a pulse stretcher as a specially designed component having at least one of a structure- or material-related dispersive effect, the pulse stretcher having a minimum 3<sup>rd</sup> order dispersion with a maximum 2<sup>nd</sup> order dispersion. The Office Action asserts that Hentschel remedies these shortfalls of Norris. The analysis of the Office Action fails for at least the following reasons.

Claim 1 recites, among other features, wherein the laser resonator has a pulse stretcher, inside a cavity of the resonator, as a specially designed component, the pulse stretcher having at least one of a structure- or material-related dispersive effect, the pulse stretcher having a minimum 3<sup>rd</sup> order dispersion with a maximum 2<sup>nd</sup> order dispersion. Hentschel teaches at, *e.g.*, page S162, 2 Setup first paragraph lines 8-13 "Due to this broad bandwidth, the material dispersion of a 10-cm-long SF57 glass block and the Faraday isolator at the entrance of the amplifier is sufficient to stretch the pulses up to  $\approx 20$ ps. This grating-less stretching technique provides high efficiency and no need for alignment. Thus, Hentschel teaches the 10-cm-long SF57 glass block at the entrance of the amplifier Hentschel would not have suggested a pulse stretcher, inside a cavity of the resonator, with all of the other features positively recited in claim 1.

The Office Action asserts that it would have been obvious to have modified the laser system of Norris with a pulse stretcher of Hentschel. This analysis further fails for the following reasons.

Hentschel teaches at, *e.g.*, page S161, first paragraph after the Abstract lines 12-14 "[i]n this paper we report for the first time, a [1-]kHz laser generating 0.1 TW pulses." Thus, Hentschel teaches at most a repetition rate of 1KHz. Applicants' specification at page 1, line 34 - page 5, line 14 details many conventional laser arrangements. Applicants' disclosure specifically points out that repetition rates for lasers with an external pulse stretcher have not exceeded 10kHz -20 kHz. Thus, if the 10-cm-long SF57 glass block Hentschel were combined with the invention of Norris the laser could not have operated at repetition rates of 50kHz, as recited in claim 1. Further, the laser of Norris is specifically for high (250kHz repetitions rates). Thus, it would not have been predictable to combine the 10-cm-long SF57 glass block of Hentschel with the invention of Norris without impermissibly changing the principle of operation of the Norris Device. The Office Action appears to draw its conclusions through the impermissible application of hindsight reasoning based on the road map provided by the Applicant's application.

For at least the foregoing reasons, Norris and Hentschel are not combinable in the manner suggested. Further, the combination of Norris with Hentschel cannot reasonably be considered to have suggested the combination of all of the features recited claim 1. Further, the combination of Norris with Hentschel cannot reasonably be considered to have suggested the combinations of all of the features recited claims 2-4, 6-9, 11, 12, 14, 16 and 17 for at least the dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-4, 6-9, 11, 12, 14, 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Norris in view of Hentschel are respectfully requested.

The Office Action rejects claims 5 and 13 under 35 U.S.C. §103(a) as being unpatentable over Norris in view of Hentschel and further in view of U.S. Patent Application Publication No. 2003/0095320 to Pang. This rejection is respectfully traversed.

The Office Action concedes that Norris and Hentschel do not teach wherein the pulse stretcher has at least two reflecting surfaces, the surfaces being arranged in such a way that the surfaces are oriented - relative to one another and- at an opening angle and the laser beam is reflected at least twice at, at least, one of the surfaces. The Office Action asserts that Pang remedies these shortfalls of Norris and Hentschel. However, as argued above, Norris and Hentschel cannot reasonably be considered have suggested the combination of all of the features recited in claim 1. Pang as applied to claim 1 does not remedy these shortfalls of Norris and Hentschel. Therefore, the combination of Norris with Hentschel and Pang cannot reasonably be considered to have suggested the combinations of all of the features recited claims 5 and 13 for at least the dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 5 and 13 under 35 U.S.C. 103(a) as being unpatentable over Norris in view of Hentschel and further in view of Pang are respectfully requested.

The Office Action rejects claims 10 and 15 under 35 U.S.C. §103(a) as being unpatentable over Norris in view of Hentschel and further in view of "Large-ratio stretch and compression of sub-10-fs pulses utilizing dispersion managed devices and a spacial light modulator," Appl. Phys. B74 [Suppl.], S253-257 2002 to Takada et al. (hereinafter "Takada"). This rejection is respectfully traversed.

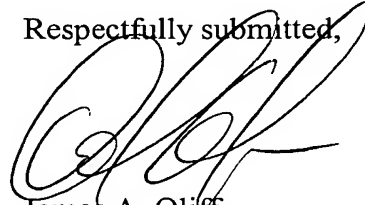
The Office Action concedes that Norris and Hentschel do not teach wherein the pulse compressor has a dispersive grating having less than 1200 lines/mm. The Office Action asserts that Takada remedies these shortfalls of Norris and Hentschel. However, as argued above, Norris and Hentschel cannot reasonably be considered have suggested the combination of all of the features recited in claim 1. Takada as applied to claim 1 does not remedy these shortfalls of Norris and Hentschel. Therefore, the combination of Norris with Hentschel and Takada cannot reasonably be considered to have suggested the combinations of all of the features recited claims 10 and 15 for at least the dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 10 and 15 under 35 U.S.C. 103(a) as being unpatentable over Norris in view of Hentschel and further in view of Takada are respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-17 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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